

**Association of Predicted Lean Body Mass and Fat Mass with Mortality among Patients with Heart Failure**

**Supplementary Materials**

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**Supplementary Tables 1. Anthropometric prediction equations for LBM and FM developed from the National Health and Nutrition Examination Survey**

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LBM	Men	$19.363 + 0.001 * \text{age (year)} + 0.064 * \text{height (cm)} + 0.756 * \text{weight (kg)} - 0.366 * \text{waist circumference (cm)} - 1.007$
	Women	$-10.683 - 0.039 * \text{age (year)} + 0.186 * \text{height (cm)} + 0.383 * \text{weight (kg)} - 0.043 * \text{waist circumference (cm)} - 0.340$
FM	Men	$-18.592 - 0.009 * \text{age (year)} - 0.080 * \text{height (cm)} + 0.226 * \text{weight (kg)} + 0.387 * \text{waist circumference (cm)} + 1.050$
	Women	$11.817 + 0.041 * \text{age (year)} - 0.199 * \text{height (cm)} + 0.610 * \text{weight (kg)} + 0.044 * \text{waist circumference (cm)} + 0.325$

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**Supplementary Table 2. Hazard ratios (HR) for 1-year mortality of HF patients by FM index or LBM index tertiles**

LBM index tertile	Model 1*		Model 2†		Model 3‡	
	HR (95%CI)	P value	HR (95%CI)	P value	HR (95%CI)	P value
1	Ref.		Ref.		Ref.	
2	0.63 (0.53-0.75)	<0.01	0.76 (0.64-0.91)	<0.01	0.78 (0.64-0.95)	0.01
3	0.39 (0.32-0.48)	<0.01	0.58 (0.47-0.72)	<0.01	0.57 (0.44-0.73)	<0.01
p value for trend	<0.01		<0.01		<0.01	

  

FM index tertile	Model 1*		Model 2†		Model 3‡	
	HR (95%CI)	P value	HR (95%CI)	P value	HR (95%CI)	P value
1	Ref.		Ref.		Ref.	
2	0.67 (0.56-0.80)	<0.01	0.80 (0.67-0.96)	0.02	0.92 (0.75-1.12)	0.42
3	0.46 (0.46-0.67)	<0.01	0.78 (0.64-0.95)	0.02	1.05 (0.83-1.33)	0.71
p value for trend	<0.01		<0.01		0.99	

Model1\*: Unadjusted.

Model2†: Adjusted for age, sex, education level, systolic blood pressure at admission, heart rate at admission, NYHA class, LVEF, serum sodium, serum albumin, Hs-cTnT, NT-proBNP, eGFR, current smoking status, the history of coronary heart disease, hypertension, chronic obstructive pulmonary disease, anemia, valvular heart disease, diabetes mellitus, atrial fibrillation, the prescription of ACEI/ARB, β-blocker, MRA.

Model3‡: Adjusted using characteristics for Model 2 by adding FM index or LBM index.

**Supplementary Table 3. Hazard ratios (HR) for 1-year mortality of HF patients by FM index or LBM index quintile**

LBM index quintile	Model 1*		Model 2†		Model 3‡	
	HR (95%CI)	P value	HR (95%CI)	P value	HR (95%CI)	P value
1	Ref.		Ref.		Ref.	
2	0.78 (0.64-0.96)	0.02	0.87 (0.71-1.07)	0.19	0.89 (0.72-1.09)	0.26
3	0.54 (0.43-0.67)	<0.01	0.67 (0.53-0.84)	<0.01	0.69 (0.54-0.88)	<0.01
4	0.41 (0.32-0.53)	<0.01	0.60 (0.46-0.77)	<0.01	0.63 (0.48-0.83)	<0.01
5	0.37 (0.29-0.48)	<0.01	0.59 (0.46-0.78)	<0.01	0.64 (0.46-0.89)	<0.01
p value for trend	<0.01		<0.01		<0.01	
FM index quintile	Model 1*		Model 2†		Model 3‡	
	HR (95%CI)	P value	HR (95%CI)	P value	HR (95%CI)	P value
1	Ref.		Ref.		Ref.	
2	0.81 (0.66-0.99)	0.05	0.93 (0.75-1.15)	0.49	0.99 (0.80-1.23)	0.96
3	0.61 (0.48-0.76)	<0.01	0.74 (0.59-0.94)	<0.01	0.85 (0.67-1.08)	0.18
4	0.52 (0.41-0.66)	<0.01	0.72 (0.56-0.92)	<0.01	0.87 (0.67-1.12)	0.28
5	0.45 (0.35-0.58)	<0.01	0.68 (0.52-0.89)	<0.01	0.94 (0.69-1.28)	0.71
p value for trend	<0.01		<0.01		0.43	

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Model1\*: Unadjusted.

Model2†: Adjusted for age, sex, education level, systolic blood pressure at admission, heart rate at admission, NYHA class, LVEF, serum sodium, serum albumin, Hs-cTnT, NT-proBNP, eGFR, current smoking status, the history of coronary heart disease, hypertension, chronic obstructive pulmonary disease, anemia, valvular heart disease, diabetes mellitus, atrial fibrillation, the prescription of ACEI/ARB,  $\beta$ -blocker, MRA.

Model3‡: Adjusted using characteristics for Model 2 by adding FM index or LBM index.

**Supplementary Table 4. Hazard ratios (HR) for 1-year mortality of HF patients by FM index or LBM index quartiles  
(prediction equations of body composition developed from Chinese population)**

LBM index quartile	Model 1*		Model 2†		Model 3‡	
	HR (95%CI)	P value	HR (95%CI)	P value	HR (95%CI)	P value
1	Ref.		Ref.		Ref.	
2	0.63 (0.52-0.76)	<0.01	0.74 (0.61-0.90)	<0.01	0.74 (0.98-0.93)	0.01
3	0.49 (0.40-0.60)	<0.01	0.65 (0.52-0.80)	<0.01	0.60 (0.45-0.80)	<0.01
4	0.36 (0.28-0.45)	<0.01	0.56 (0.43-0.71)	<0.01	0.45 (0.31-0.66)	<0.01
p value for trend	<0.01		<0.01		<0.01	

  

FM index quartile	Model 1*		Model 2†		Model 3‡	
	HR (95%CI)	P value	HR (95%CI)	P value	HR (95%CI)	P value
1	Ref.		Ref.		Ref.	
2	0.68 (0.56-0.82)	<0.01	0.79 (0.65-0.96)	0.02	0.94 (0.75-1.17)	0.55
3	0.56 (0.45-0.69)	<0.01	0.72 (0.58-0.90)	<0.01	1.04 (0.79-1.38)	0.77
4	0.45 (0.36-0.57)	<0.01	0.69 (0.54-0.88)	<0.01	1.29 (0.88-1.90)	0.19
p value for trend	<0.01		<0.01		0.68	

Model1\*: Unadjusted.

Model2†: Adjusted for age, sex, education level, systolic blood pressure at admission, heart rate at admission, NYHA class, LVEF, serum sodium, serum albumin, Hs-cTnT, NT-proBNP, eGFR, current smoking status, the history of coronary heart disease, hypertension, chronic obstructive pulmonary disease, anemia, valvular heart disease, diabetes mellitus, atrial fibrillation, the prescription of ACEI/ARB,  $\beta$ -blocker, MRA.

Model3‡: Adjusted using characteristics for Model 2 by adding FM index or LBM index.

**Supplementary Table 5. Association between body composition indices and mortality, excluding patients who died during the first 3 months of follow-up and patients with BMI<18kg/m<sup>2</sup>**

LBM index quartile	Model 1*		Model 2†		Model 3‡	
	HR (95%CI)	P value	HR (95%CI)	P value	HR (95%CI)	P value
1	Ref.		Ref.		Ref.	
2	0.69 (0.53-0.89)	<0.01	0.75 (0.57-0.98)	0.03	0.76 (0.58-1.00)	0.05
3	0.55 (0.42-0.73)	<0.01	0.70 (0.52-0.93)	0.01	0.72 (0.53-0.98)	0.03
4	0.42 (0.32-0.57)	<0.01	0.60 (0.44-0.82)	<0.01	0.64 (0.44-0.92)	0.02
p value for trend	<0.01		<0.01		0.02	
FM index quartile	Model 1*		Model 2†		Model 3‡	
	HR (95%CI)	P value	HR (95%CI)	P value	HR (95%CI)	P value
1	Ref.		Ref.		Ref.	
2	0.79 (0.60-1.03)	0.08	0.89 (0.68-1.17)	0.40	0.96 (0.73-1.27)	0.77
3	0.63 (0.48-0.84)	<0.01	0.82 (0.61-1.09)	0.17	0.94 (0.68-1.28)	0.67
4	0.53 (0.39-0.71)	<0.01	0.72 (0.53-0.99)	0.04	0.89 (0.62-1.28)	0.53
p value for trend	<0.01		0.03		0.60	

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Model1\*: Unadjusted.

Model2†: Adjusted for age, sex, education level, systolic blood pressure at admission, heart rate at admission, NYHA class, LVEF, serum sodium, serum albumin, Hs-cTnT, NT-proBNP, eGFR, current smoking status, the history of coronary heart disease, hypertension, chronic obstructive pulmonary disease, anemia, valvular heart disease, diabetes mellitus, atrial fibrillation, the prescription of ACEI/ARB,  $\beta$ -blocker, MRA.

Model3‡: Adjusted using characteristics for Model 2 by adding FM index or LBM index.